

### **ABSTRACT OF THE DISCLOSURE**

A single piece co-cured composite wing is disclosed. The wing has a flying surface and structural members. In one embodiment the structural members may be a plurality of spars. The spars may have various shapes to increase the buckling strength.

5 The spars may be wave shaped, such as a sinusoidal shape. The flying surface and the structural members are co-cured in order to form a single piece, integral wing structure.

A process for manufacturing a single piece co-cured wing is also disclosed. The process may include laying out composite sheets for the flying surface of the wing. Then, the composite material of the spars is arranged around a plurality of pressurizable forms.

10 Finally, the composite material is cured in a clamshell frame.